NJIT@JerseyCity
Certificate in Foundations of Cybersecurity

Certificate in Foundations of Cybersecurity (12 credits)
Training Cybersecurity Experts

This certificate program teaches essential skills for **cybersecurity professionals** to build and maintain secure software systems while providing the tools to ensure the integrity of data and network communication. This spans topics from theoretical models of cryptography to an understanding of government and corporate policies.

The curriculum focuses on techniques for mitigating the risk of data breaches and unauthorized access to networked devices and systems. Participants learn how to identify security vulnerabilities in local, networked and cloud software systems, and develop rigorous data management and software development workflows.

The program consists of four courses of three credits each, (two core courses and two electives), typically taught over two semesters of 15 weeks each. Instruction includes formal lectures as well as hands-on projects securely storing, transmitting and extracting data.

The program curriculum covers tools and technologies such as OpenSSL, Wireshark, Rainbow tables, Blockchains and Certificate Transparency. Students complete assignments and projects covering both theory and applications on real-world examples with guidance from the professor and teaching assistants.

Recommended part-time credit schedule:
First semester: six, Second semester: six. Total: 12 credits over two semesters **(incl. summer)**.

Core (required) courses:

- **CS 608 Cryptography and Security**
- **CS 645 Security and Privacy in Computer Systems**

Sample electives:

- **CS 631 Data Management Systems Design**
- **CS 634 Data Mining**
- **CS 643 Cloud Computing**
- **CS 656 Internet and Higher Layer Protocols**
- **IS 601 Web Systems Development**

To be eligible for admission to the certificate program, a candidate must hold an undergraduate degree with a minimum GPA of 2.6 on a 4.0 scale. A GPA of 2.75 on a 4.0 scale in the certificate program is required to earn the certificate.

Credit earned in this certificate program can be applied to a corresponding MS degree. A GPA of 3.0 in the certificate program is required to be eligible for admission into an M.S. program.

Program Outcomes:

- Design and build secure infrastructure for managing data and communication both in the cloud and on local servers.
- Provide expert insight on security standards and protocols in large-scale software development or data analytics projects.
- Perform ad-hoc analyses of data stored in corporate or government databases and propose solutions to potential vulnerabilities.

For more information and to apply, contact:
Tim Hart, Enrollment Services Manager
Phone: 973-596-2911, 862-234-5706
Email: hart@njit.edu

jerseycity.njit.edu

NJIT
New Jersey Institute of Technology